STEP 8

PROVIDE THE PREVENTIVE SERVICE

Sealant retention is directly related to the application technique. Each step must be carefully executed. The application technique will vary depending upon the staffing of the programs and the type of sealant material used.

Clean Tooth--*Brush It Off*

The purpose of cleaning the tooth prior to sealant placement is to thoroughly remove all the plaque or debris from the tooth surfaces. Different cleaning methods have been advocated such as brushing with water, air polishing, hydrogen peroxide, and many others. Research shows that retention rates are similar regardless of cleaning methods. Therefore, any method that removes the plaque or debris is acceptable. The easiest cleaning method is to brush the tooth surfaces with plain water. After the surfaces are cleaned and thoroughly rinsed, dry the teeth and check for any remaining debris.

Isolate and Dry--*Keep it Dry*

Isolation is the most critical aspect of sealant application. Salivary contamination of a tooth during or after acid etching will have a detrimental effect on retention. Studies show that even a one-second saliva contamination decreases retention. The use of Garmer clamps (cotton roll holders) is one of the most successful methods for isolation. The clamps hold the cotton rolls in place and keep the tongue out of the way. Cotton rolls, dry angles, or gauze should be placed over the parotid duct. Some operators like to place a dry angle between the cotton roll holder and the lingual surface of the mandibular teeth to create an additional barrier for the tongue. The saliva ejector and/or high volume evacuator should also be used.

After the teeth are isolated, they must be thoroughly dried before etching.

Acid Etching--*Make it Frosty*

The purpose of acid etching the surface is to increase the surface area by forming micropores in the subsurface of the enamel. These micropores increase the mechanical retention of the sealant. Using cotton pellets, brushes or any manufacture applicator, place the etchant 2-mm past the margin to be sealed. The etched surface that is not covered by the sealant will remineralize within twenty-four hours.

Follow the manufactures recommendation for etch time. Studies show that sealant bond strength to enamel are comparable for etch times from 15 to 60 seconds. Additionally, primary teeth that are etched for the same time as permanent teeth show similar retention rates. The operator can determine if the etch time was appropriate by observing if the surface has a frosty appearance when dried.

Rinse and Dry--*Don t Rush It*

Rinse the etched surface for a sufficient amount of time (10-15 seconds) to remove all organic particles from the micropores. From this point forward, until the sealant has hardened, salivary contamination will have a detrimental affect on sealant retention. If there is any salivary contamination of the etched surface before the sealant has hardened, re-etch for 10-15 seconds.

To ensure the surface remains dry after rinsing, replace the water soaked isolation items and Garmer clamp. To prevent delay and possible saliva contamination have the cotton rolls placed in a second Garmer clamp at the beginning of the appointment. Occasionally, water can be removed from the cotton rolls with a high-speed evacuator and dry isolation items can be placed over the wet items.

Before drying the surface, it is important to check the air syringe for moisture in the line by blowing air on the bib or mirror. Dry thoroughly for 15 seconds and evaluate the surface for a frosty, white appearance. If the surface does not have the appropriate appearance, re-etch for 10-15 seconds.

Place Sealant --*In The Groove, Let It Flow*

Since the application step will vary according to the product selected, the operator should follow the manufacturer s instructions. Applicators will also vary according to the manufacture and operator s preference. If more than one tooth in a quadrant is being sealed, the most posterior tooth should be treated first since maintaining dryness is more difficult in the back of the mouth. To avoid bubbles, don t shake the containers immediately prior to placement.

The patient s head should be positioned so the occlusal plane is parallel to the floor. Depending on the consistency, apply the sealant to the most mesial surface and allow the sealant to flow distally. If the sealant material is very viscous, the operator may need to pull the sealant material through the pit with an explorer or dycal instrument to achieve desired thinness. For maximum caries protection, all susceptible pits and fissures should be sealed with a thin layer of sealant. Be sure not to overfill fossa.

When self-cure sealant is used, one drop of liquid catalyst and base are mixed together in a dappen dish. One drop of each is usually enough to seal four teeth or one quadrant. Working

and setting time will vary according to temperature and product. Normal working time is 30-45 seconds and setting time is 60-90 seconds. Check to see if the sealant is harden in the dappen dish before examining the tooth.

Light-cure sealants do not require mixing. After the sealant is applied to the surface, it is important to allow enough time (5-10 seconds) for the material to flow into the grooves before curing. Hold the light as close as possible without touching the surface and cure for a minimum of 20 seconds. Under curing can affect the retention rate while no harm can be done with over curing. To cover the entire surface, a larger 12-mm curing light tip is recommended.

Evaluate Sealant--*Don t Miss The Pits*

Isolation of the teeth should be maintained until the sealant is checked by sight and touch for complete coverage of all pits and fissures. Avoiding undoforce, check retention by attempting to dislodge the sealant with an explorer. Additional sealant material may be applied directly to the surface if no salivary contaminated has occurred. Otherwise, re-etch for 10 seconds before reapplying the sealant.

Check the contacts with floss and evaluate the gingival area for excess sealant. Excess can be removed with a scaler or flame shaped polishing bur.

The patient should be advised that it is normal to have slight temporary occlusal interference. Depending on the filler content, the sealant should abrade into proper occlusion within three or four days. If necessary, the occlusion can be adjusted with a polishing bur.

To prevent a bad taste, after the sealant has hardened, the air inhibited greasy layers on top of the sealant should be removed with gauze. Sealants should be re-evaluated at recalls. The need for re-application will be the highest within the first six months.

TROUBLESHOOTING

Common problems and possible causes found during sealant placement.

Sealant Application

Common Problems	Possible Causes
Sealant will not polyermize (harden).	• Salivary contamination • Etch brush was inadvertently used to place the sealant
Sealant sets up slowly.	• Sealant material is past the expiration date • Sealant was not at room temperature
Sealant comes off when checking with an explorer.	• Salivary contamination • Improper curing time • Improper cleaning of the tooth • Improper etching time • Incomplete rinsing after etching
Bubbles are present in sealant surface.	• Brushing or dabbing sealant on tooth rather than allowing sealant to flow into grooves • Excessive mixing or stirring of sealant before placement
Excessive occlusal interference is present.	• Sealant is placed too thick • Incomplete trimming after sealant is placed

Please note: This document does not contain any appendices. If you would like to obtain these materials please contact Ethel Steinmetz at (360 236-3507 or Ethel.Steinmetz@doh.wa.gov